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Dear Reader,

Despite hard times, bankers intend to keep spending on technology. They know that in the long run, smart spending today can save money tomorrow. Among their top technological goals: better risk management, more complete customer information files, and improved loan collection systems.

These are a few of the findings in the American Banker's fifth annual technology survey. This year, technology experts from Ernst & Young helped American Banker editors design the survey. Questionnaires were mailed to the chief technology officers at the top 150 bank holding companies. We would like to thank the 57 bankers who took time to respond, enabling us to craft this mosaic of bank technology – as it exists now and as it will likely evolve.

The chief architects of this year's survey include Jeffrey Kutler, the newspaper's assistant managing editor; Brian Tracey, technology news editor; as well as Ernst & Young consultants Diogo Teixeira and Greg Schmergel. Brian's overview begins on page 6. A comment by Diogo and Greg starts on page 11.

Features editor Patricia Kitchen coordinated the editing and writing, along with Beth Piskora, assistant features editor. The art department – Pamela Budz Moriarty, Dylan Kreuzer, and Carl Zeichner – designed the magazine and the graphics. Jane Sandiford handled the copy editing.

Technology is so important to banking that it can often make the difference between survival and extinction. We hope the following pages will help our readers be survivors.

Sincerely,

Edwin A. Finn, Jr.
Editor

WILL YOUR CUSTOMERS TAKE IT AS A GOOD SIGN?

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How the Survey Was Conducted

The articles in this publication report and analyze the results of the *American Banker*/Ernst & Young 1991 technology survey. The survey, containing questions on banking technology, was delivered to the chief technology executives at 150 of the top bank holding companies in the United States, as measured by total noninterest expense. Noninterest expense was chosen because it best correlates with technology spending.

Of the surveys that were mailed out, 57 were completed and returned, a response rate of 38%. These 57 bank holding companies represent over 25% of the industry's total noninterest expenditures and were evenly distributed among the top 150 in terms of size.

In calculating the industry projections, each bank's responses were weighted according to the percentage of the industry, as measured by noninterest expense, that they represent.

For a question in which half of all the survey respondents gave the same response, there is a 95% probability that the same answer would be given by 45% to 55% of all banks of similar size. In other words, the sampling error at the 95% confidence level is plus or minus five percentage points.

For the large variety of questions on this survey, the statistical validity of the results will vary based on the number of respondents who answered that particular question, the degree to which their interpretation of the question was consistent with others, the structure of the particular question, and the degree to which the distribution of respondents answering the question is representative of the distribution of the population at large.

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Too Much Computer Power

By Brian Tracey

IN AN INCREASINGLY COMPETITIVE FIELD, BANKS HAVE TO PARE INEFFICIENT BUSINESSES AND SYSTEMS.

The recent recession brought many bankers, policymakers, and investors around to accept what for some had long been conventional wisdom: there are simply too many banks.

This argument, summed up by the term "overcapacity," has a technological corollary: The industry has too many offices, too many back offices, and more than enough equipment to carry the transaction and accounting load. In short, there is too much infrastructure.

It is an assumption that is supported by the *American Banker*'s 1991 technology survey. The data, gathered this year by Ernst & Young from 57 of the 150 largest banking companies in technology spending, showed that despite the industry's retrenchment, back-office capacity continues to grow.

Most cost-cutting efforts have been short-term fixes. The industry has not yet come to grips with the fact that as it shakes out, as the number of institutions shrinks and staffs are reduced, the back-office structure needs at least as much radical surgery.

Nonbanks More Efficient

And in a time of economic, competitive, and regulatory upheaval, the restructuring moves cannot be planned or carried out in a vacuum. Nonbank competitors, most experts agree, are already more efficient, spending less on operations per dollar of revenue than banks do.

"Mutual funds can deliver their products to consumers at one-tenth the cost of a traditional bank-branch delivery system," said Robert B. Hedges Jr., vice president at the MAC Group, a bank consulting firm in Chicago. "That cost difference is not lost on customers."

In addition to the costs of operating brick-and-mortar branches, banks spent heavily in the 1980s on technology. During much of the decade, annual increases in data processing budgets were two to three times the rate of inflation.

Praying at the Altar

The rationale for the increases was the explosion in electronic banking delivery mechanisms: automated teller machine networks, corporate cash management services, and sophisticated trust management systems. Bankers spent much of the last decade praying at the altar of technology, yearning for lower operating costs and higher margins.

While there have been some successes, most banks have stopped looking to their systems for salvation.

Taking inflation into account, technology spending at commercial banks

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will remain flat over the next three years, according to the *American Banker*/Ernst & Young data. The study estimates that banks will spend slightly more than $12 billion on hardware, software, and technical support staff in 1993, only 7% over the $11.3 billion spent in 1990.

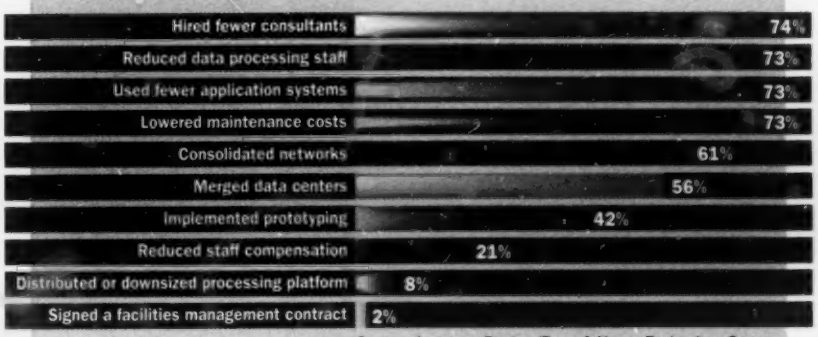
If ballooning technology budgets were the rage in the 1980s, cost-cutting has become the buzzword of the 1990s. However, only a quarter of the banks that responded to the survey said their technology budgets will decline, and their cost-control strategies cannot be construed as drastic.

The most popular methods bankers cited for controlling expenses included hiring fewer consultants, reducing data processing staff, and relying on fewer application systems.

Long-term cost-cutting solutions such as consolidating or downsizing data centers were seen as less attractive alternatives.

Methods to Control Costs

The most commonly reported cost-cutting measures, 1990-91


Hired fewer consultants 74%
Reduced data processing staff 73%
Used fewer application systems 73%
Lowered maintenance costs 73%
Consolidated networks 61%
Merged data centers 56%
Implemented prototyping 42%
Reduced staff compensation 21%
Distributed or downsized processing platform 8%
Signed a facilities management contract 2%

Source: American Banker/Ernst & Young Technology Survey

High-Cost Producers

Banks have become high-cost producers for many of their product lines because they failed to recognize the risks of expansion during the 1980s, according to Lowell L. Bryan, a banking consultant with McKinsey & Co.

Banks "devoted most of their investments in computer systems, new branches, and staff to the common service of all customer segments – regardless of whether a segment made money or lost money," Mr. Bryan wrote in the May-June 1991 *Harvard Business Review*. "They didn't worry whether profitable products and services subsidized weaker ones."

A weak economy has left fewer cash cows to rely on. Ironically, some experts believe the big investments in technology during the previous decade also played a role in choking off profits.

"The wire transfer business is a classic example of how technology can turn a profitable service into a commodity," said Diogo Teixeira, a partner with Ernst & Young, who helped design the *American Banker* survey. "With funds transfer, the capacity of the industry grew as it has became more automated. The result is the cost has gone down."

He said the average cost for a bank customer to perform a wire transfer was $15 in 1980; today it is $5. And while automation caused banks' cost per transaction to drop as well, technology lowered the barriers to providing the service. As more banks offered funds transfers – adding to available capacity – everyone's profit margins shrank.

Savvy Customers

If some bankers did not recognize that many of their products and services were turning into commodity businesses, customers quickly did.

"With so many suppliers of banking services, customers divide their business," said Richard L. Huber, the vice chairman responsible for corporate banking operations for Continental Bank Corp. in Chicago.

Mr. Huber said Continental has tried to stay away from competing purely as a low-cost supplier. "In cash management, which for us is the most operationally intensive business, it is essential to be a quality low-cost producer, and I really emphasize the word 'quality,' " he said. "We think we can add value and can therefore charge a premium price, but that premium price cannot be too far above the plain-vanilla commodity provider."

Some bankers have come to downplay the role of technology as the industry consolidates.

"The reason there's not a correlation of overcapacity in the marketplace to banks' computer capacity is because the computer itself is a relatively small component of the total cost structure," said O. Darwin Smith, president of NCNB Support Services, the operations arm of NCNB Corp. in Charlotte, N.C. "In terms of a pure cost-benefit analysis, there is a need to consolidate, to streamline, to simplify operations," he said.

Firsthand Experience

Mr. Smith can speak intimately about the issue: After NCNB acquired the assets of the failed First RepublicBank Corp. from the Federal Deposit Insurance Corp. in 1988, he spearheaded the back-office consolidation of the Texas unit.

Part of the streamlining effort will be to analyze how banks' back offices

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"Mutual funds can deliver their products to consumers at one-tenth the cost of a traditional bank-branch delivery system."

ROBERT B. HEDGES JR.
Vice president
The MAC Group, Chicago

measure up to those of nonbank competitors.

"I think the more we do benchmarking, we should not be comparing ourselves to other banks, but to other industries," Mr. Smith said. "Historically, banks have operated under the concept of pooled costs, with the intent of lowering the average cost. We need to develop degrees of specialization, different approaches for different parts of the bank. In that way, banks can reduce costs and still provide better customer service."

Observers say this migration away from pooled cost accounting cannot take place without regulatory reform from Washington. "Costs of financial transactions of banks and insurance companies or mutual funds are not comparable," Mr. Teixeira said. "Nonbanks are not as restricted [by regulations] as banks are in creating new products."

However, if the Treasury bill passes in its current form, banks' ability to enter new lines of business such as insurance and stock brokerage will force them to take a harder look at how their operations are organized. "If banks get new powers and disaggregate their front offices, it only seems to follow that they need to find a way to disaggregate the back office as well," Mr. Smith said.

Role of Mainframes

Despite predictions that cheap personal computers and high-powered desktop workstations will cause the demise of expensive, centralized mainframe computers, this year's survey found that banks will continue to rely heavily on these electronic behemoths for the foreseeable future. The total number of mainframes will drop slightly over next three years, but these machines' overall capacity – as measured by processing power, online transactions, and storage capacity – will continue to mount over the same period.

Bankers say mainframes, even with their high cost per transaction compared with personal computers, will continue to play a dominant role. "I don't think the growth in mainframes and the growth in PCs [in banking] are at all mutually exclusive, but are in fact consistent," Mr. Smith said. "More and more, what you are seeing are PCs connected to host computers; you need the mainframes because of the enormous data storage capabilities."

Mr. Huber said Continental is designing its technology around two concepts: a unified customer information file and distributed software controlled by individual business units.

"A customer data base is something that we and other banks believe has to be on a single [mainframe], or closely networked series of mainframes," he said. "On the front end – the applications – that adapts itself quite well to distributed processing."

Building on Relationships

The key to banks' successful utilization of technology as the industry shrinks will be to harness computers for competitive advantage, building on existing customer relationships.

"We need to have the ability for our people in dispersed areas to have complete client information available to them so they can make decisions," Mr. Smith of NCNB said. "As the industry consolidates, more information is needed by customer relationship as opposed to by single transaction."

Mr. Teixeira said that to fully appreciate how the consolidation of the industry will affect the back office, bankers need to better understand the cost of transactions and how it relates to customer profitability. They will also have to measure operational capacity for each line of business and the profit it generates.

The consultant concludes that sometimes the best-laid technology plans do not yield profits in a glutted market. "Often the best answer is to simply to withdraw from a business," he said. □

Facing the Technology Imperative

By Diogo Teixeira and Greg Schmergel

NO LONGER MERELY TOOLS, COMPUTER SYSTEMS ARE NOW A DRIVING FORCE IN BANKING.

This year, the *American Banker* and Ernst & Young joined forces to conduct a survey to measure the scope of technology in the banking industry today.

What we found is that even with stagnant asset levels, mature products, and modest growth in demand, the banking industry has experienced – and will continue to experience – significant yearly growth in processing power, computerized data, and electronic transactions.

The industry is updating and improving its hardware and software architectures to take advantage of continuing technological advances. From the results, bank executives can see the major growth areas and paradigm shifts, and can compare their own progress with the industry.

An Ineluctable Force

Although it is well known that technology is important, its true significance for the banking industry is still widely underestimated. Technology has long since stopped being an available tool and has become a primary force in banking. Bankers today face a technological imperative.

The word "imperative" suggests an irresistible force – one that commands rather than requests compliance. Karl Marx conceived of the historical imperative: the shift of control over the means of production, beginning with capitalism and ending with communism. Immanuel Kant's categorical imperative was a binding moral code. It forced each person to consider what the world would be like if everyone acted the same way he did.

These imperatives come from the world of political and ethical philosophy. But today, there is a new kind of imperative that exists not in theory, but in reality. This imperative is the irresistible force of more efficient technologies constantly displacing less efficient ones, thereby changing business strategies, industry structure, and competitive balance. Many bankers are aware of this displacement, but there are few easy answers to the issues raised by the technological imperative.

The statistics to support the force of the technological imperative are reported throughout this document. Some observers have asked whether banks have simply overspent on technology – and indeed some may have. There may be a short-term reduction in the growth trends as banks consolidate data centers, rationalize their applications, and cut back on new development projects. One financial

Diogo Teixeira is a partner with consulting firm Ernst & Young. He heads the Center for Information Technology and Strategy in Cambridge, Mass. Greg Schmergel is a consultant with the center.

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institution recently reduced its on-line storage capacity by 50% with no ill effects. But the long-term growth trend is inescapable.

A Fundamental Change

Among the many forces at work in banking – including deregulation and economic cycles – technology is the one that has changed the core of the business irrevocably. No longer are consumers and businesses tied to doing their banking from 9 a.m. to 3 p.m., Monday through Friday. A banker from the year 1890 exploring the 1990s would need years to learn his own profession again, not just because of computers but because it has truly become a different business.

Realizing that fact, bank executives should not ask how they can use information technology for competitive advantage until they have questioned the basics: Given the nature and pace of the technological imperative, what businesses should this bank be in? What opportunities do these technological changes hold, for this bank and its competitors, and what is the appropriate reaction?

Banks that react appropriately to the technological imperative will have a much better chance of surviving 10 years hence. But reacting appropriately may involve complex, difficult, and risky decisions. Deciding to abandon a traditional line of business can be challenging in the short term, no matter how beneficial it is expected to be in the long term. One major bank we know originates only one new auto loan per branch per year (and has no indirect programs), yet it still invests in rationalizing its consumer lending operations and technology – including the auto loan system.

Rethinking the Mission

In some cases, the mission of the bank may have to be completely rethought. State Street Boston Corp., for example, has metamorphosed completely in the past 25 years. The bank states on the inside front cover of its 1990 annual report that it "combines information technology with banking to service a growing number of customers worldwide."

Fifty years ago such a statement would have been practically incomprehensible – and even today it is quite unusual. Fifty years from now, it may be so commonplace that it goes unspoken.

Technology has become much more than just an available "solution," to be applied if the cost-benefit calculations show a break-even. Rather, reacting to the technological imperative has become an integral and inescapable part of the financial services environment.

The imperative may work against specific banks' strategies as much as it can work for them, since competing banks or substitute products may also benefit. For example, the corporate trend toward commercial paper instead of bank commercial and industrial loans began in the early 1960s. The ratio of bank C&I loans to commercial paper issued has fallen from about 10:1 in 1960 to 1:1 in 1990. Is it an accident that this trend began right when IBM's revolutionary S/360 was introduced?

Mutual Fund Revolution

Take, for another example, the mutual fund industry, with about $1.3 billion in assets managed, equal to over 35% of bank deposits. Using mail, 800 numbers, and extensive (but generally outsourced) computer systems, mutual finds have been able to "cherry-pick" many of the most attractive deposit customers – and have done so at an average annual servicing cost of about $25, compared with about $250 for a typical retail bank transaction account.

Both of these examples illustrate one potential long-term impact of the technological imperative – competitive products bypassing the traditional bank intermediation role.

Banks can find successful strategies, of course, even in the face of the technological imperative. But this will not happen simply by adopting whatever new technologies come along. As the survey shows, many new technologies will grow substantially and will require large investments.

For example, almost 80% of the survey respondents plan to have client-server technology in use by 1993. File-folder image processing applications are expected to grow by a factor of 12 in the same period. With so many competitors using the same technology, the successful banks will have to set themselves apart by finding distinctive applications for their technology – applications that creatively support their business goals and are not easily duplicated by competitors.

Adding Value

The banks that are most adept at managing will spend just enough on the automation that is becoming routine and focus the rest of their efforts and money on the creative and the unique. The losers may well overspend in areas that bring nothing new to the customer. Each bank must find the specific lines of business where it can create the most value.

Banks compete for a finite pool of customers and profits. An analogy can be made to the nations and empires that have competed through history for the limited resources of the world. William H. McNeill's sweeping world history, *The Rise of the West*, shows that whether civilizations prevailed or failed depended not on their size, population, or wealth, but on how well they mastered technology. Those that were not aware of its importance stagnated, merged, or vanished. In the next century, the banks that survive and prosper will likewise be those that face the technological imperative and adapt to its requirements. □

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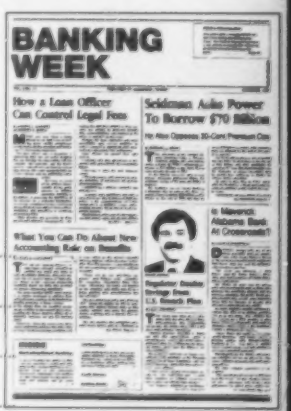
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Cost Cutting: A Delicate Balancing Act

By Jeanne Iida

WALL STREET LIKES TO SEE EXPENDITURES SLASHED, BUT BANKS HAVE TO KEEP UP AREAS VITAL TO CUSTOMER SERVICE.

Banks are walking a tightrope as they seek to hold the line on technology expenses. They have to make enough cuts to satisfy investors, but they cannot undermine customer service.

According to a study conducted by Ernst & Young for the *American Banker*, banks will hold technology spending increases to 2.25% a year through 1993. The rate is far below the double-digit increases that were common in the early to mid-1980s.

But it may not be low enough to regain the confidence of Wall Street, according to some consultants.

"The risk for all institutions is that even slow growth in spending will be unacceptable for the analyst community," said Robert B. Hedges Jr., vice president of the MAC Group, a Boston-based consulting firm.

Service Could Suffer

At the same time, "if they don't constrain it enough, they may be forced to take a meat cleaver to customer service areas," he added.

According to the survey of technology managers at 57 of the nation's largest banks (as measured by noninterest expenditures), the cost reductions that banks are planning will come from several areas, with the biggest savings expected from consolidating data centers and eliminating some of the software they support.

Banks are also focusing on fewer new projects and spending big dollars only on technologies like image processing, which promise to reduce costs dramatically.

But technologists cautioned that just cutting costs is not enough to make a bank more competitive. Banks should reinvest the money they save to improve back-office efficiency and customer service.

How They're Cutting

The banks surveyed favored several methods of cost cutting. About 74% of the respondents said they would reduce technology staff, 74% planned to hire fewer consultants, 73% expected to streamline the number of applications systems used, and 73% planned to cut maintenance costs – possibly by shifting to another vendor.

Several bankers said they would fund fewer technology projects this year than in the past.

And the industry as a whole plans to eliminate about 7,000 jobs in the information technology area by 1993.

According to the survey, the banking industry spent about $11.3 billion on information technology in 1990. Those expenses will rise 2.25% a year to $11.6 billion in 1991 and $12.1 billion by 1993.

Only a quarter of banks responding to the survey said they would decrease

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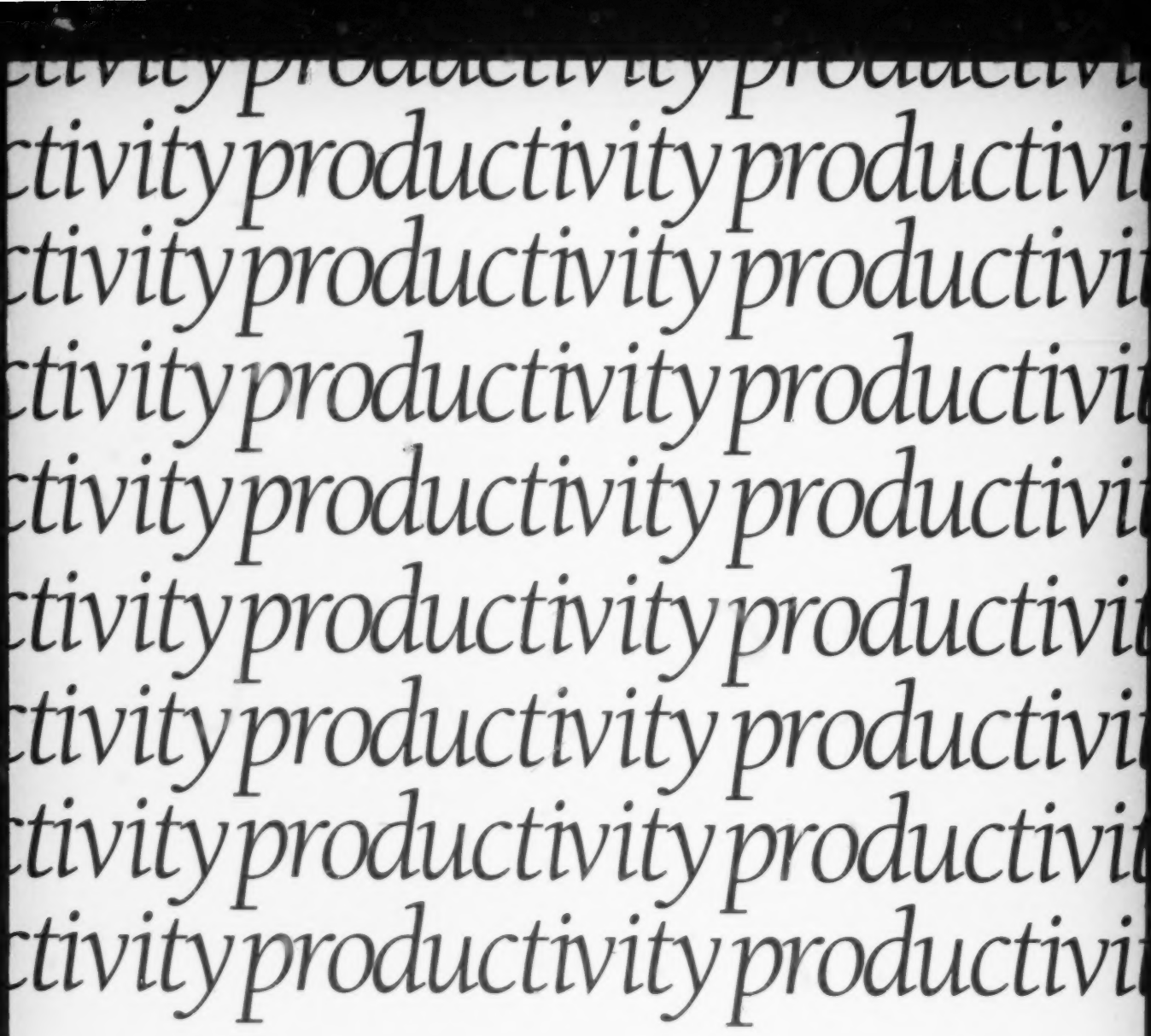

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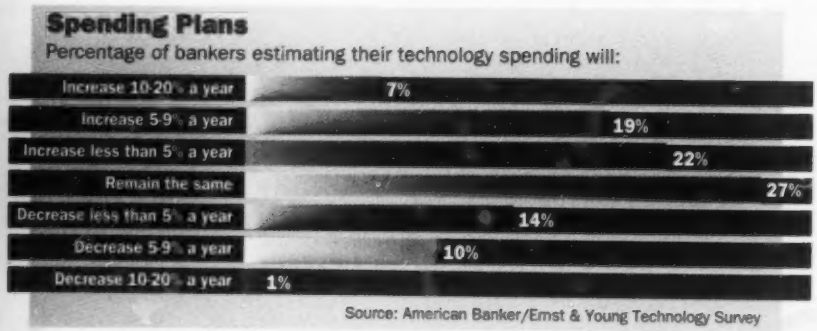


spending, as opposed to 27% that said they would hold spending steady, and 48% that said they would increase spending.

But nearly half of the banks surveyed said this year's information technology spending either would not change or would increase by less than 5% over last year's.

Of the banks planning to increase costs, the majority, 22%, plan small increases of 1% to 4% per year.

Belt-Tightening in Ohio

Huntington Service Co., the data processing arm of Huntington Bancshares Inc. in Columbus, Ohio, plans its lowest budget increase in five years. "We're up 6% from last year, but five years ago we were up 30% from the year before," said Rick Sellers, the new president of Huntington Service Co.

C&S/Sovran Corp., which is consolidating seven data centers into two, plans to spend about 5% less on information technology this year than the two banks combined did last year.

"We'll have savings in hardware, software, and personnel," said George Budd, group executive vice president of the merged entity.

The bank is consolidating on a single architecture – IBM – and a single operating system, saving on facilities, hardware, and the technical staff required to maintain multiple systems.

Some banks are plowing savings back into projects to improve efficiency. But bankers are more conservative about how they will invest, choosing the projects they deem most essential.

Funds for Streamlining

CoreStates Financial Corp., which expects to keep spending growth under 5%, plans to plow the savings back into projects to streamline back-office procedures and put paper files onto optical disks for easier access and cheaper storage.

"We've generally looked at expense reduction as a way of funding new growth," said George F. Hall, executive vice president of CoreStates.

Huntington also has cut half of the major systems development projects for the coming year. But the remaining projects are ambitious ones, including a check imaging project and an alliance with AT&T. Huntington plans to offer a "smart phone," developed by AT&T, that allows customers to review their accounts, pay bills, and transfer money between accounts from their home.

Other banks have dropped out of costly technology projects. NCNB Corp., for example, left a highly publicized joint check imaging project with IBM because delays were raising costs.

Shifting Personnel

Banks also said they will reallocate resources, putting fewer people – 33% as opposed to today's 36% – into data center operations, and more staff members – 9% as opposed to today's 7% – in user support areas by 1993. The proportion of staff in other areas, including data administration, systems software, and applications development, will remain constant or rise slightly.

Mr. Budd said that staff cuts at C&S/Sovran will come in three areas. Re-engineering, or streamlining work flows, in back-office areas such as research and adjustments will allow the bank to save on clerical salaries. And by consolidating seven data centers into two, "we'll save on technical staff, and we'll be able to serve growing applications needs without growing the applications staff," said Mr. Budd.

Huntington is holding its staff levels flat, and tries to keep a lid on salary expenses by replacing senior applications programmers with entry-level programmers, when possible.

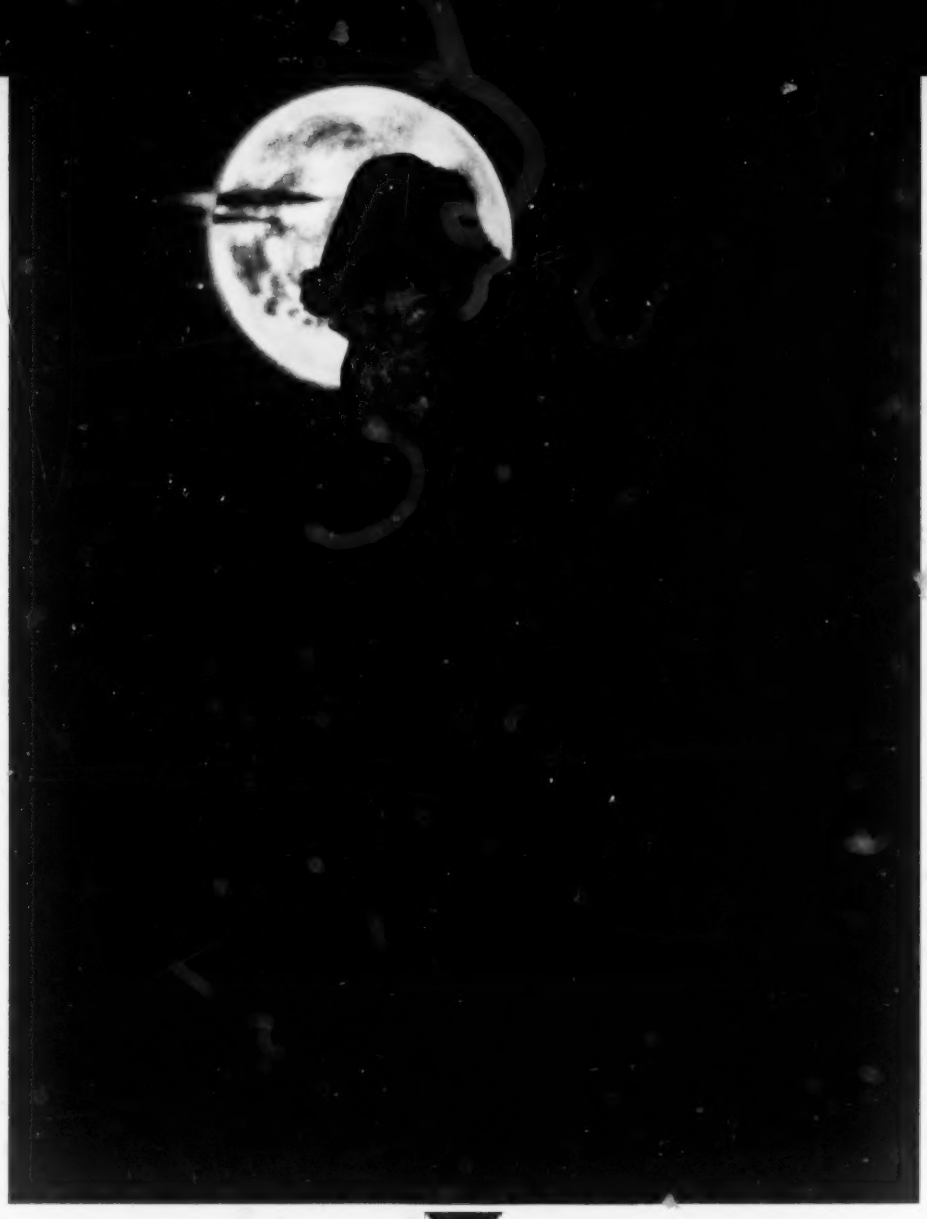
While this seems a risky strategy, Mr. Sellers said he believes it is not, because the bank maintains a ratio of one senior-level programmer for every three entry-level programmers.

Maintenance Cuts

About 73% of the technologists polled said they would cut back on spending for hardware and software maintenance. Banks will wring some savings from the move to a single hardware architecture, which reduces the operating systems and hardware that need to be supported.

And banks that have traditionally used IBM's maintenance services are now shopping around for less expensive deals from competitors such as Bell Atlantic Corp., which offers a 30% to 35% reduction on hardware maintenance. The bankers can then go back to IBM to bargain the price down.

While some bankers said cost cutting does not provide the payback that a new branch automation or image processing system does, others said cost cutting can lead to a tangible benefit. "There's a big payback through credibility with investors," said Mr. Budd of C&S/Sovran. □



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Recession Puts Banks In a Catch-22

By Matt Barthel

NEW SYSTEMS MIGHT ENHANCE REVENUE, BUT MONEY FOR NEEDED IMPROVEMENTS IS TIGHT.

The recession has forced bankers to rethink their business strategies in a number of areas, but nowhere are the economy's adverse effects more apparent than in banks' attitudes toward technology spending.

Banks, which ranked among the nation's most avid buyers of new computer equipment five and 10 years ago, are now taking a much more cautious approach to such purchases, and that wariness has led to shrinking technology budgets at many institutions.

Technology spending at U.S. financial institutions is growing at a rate of about 2% this year – significantly lower than the growth rates of 10% and 15% only a few years ago.

The data come from a poll of the senior technology managers at 57 of the nation's top 150 bank holding companies (as measured by noninterest expenditures).

Technology spending cuts – motivated mainly by a desire to conserve precious capital – create a Catch-22 for many bankers. They want to use technology to reduce costs and increase revenue, but the current economic climate precludes them from making new investments that might not pan out.

Placing Careful Bets

Thus, rather than risk capital on unproven technologies, a majority of the survey respondents are trying to reduce their exposure to risk by either squeezing the most out of their existing systems or buying only those products that have already been proved to be cost effective.

Sixty percent of survey respondents said they plan to eliminate one or more development projects this year, a statistic that comes as no surprise to bank analysts, given the current economic climate.

More provocatively, however, over 70% of respondents said that improving their electronic customer information files – a technology that has been around for more than 10 years – would be their most important technology initiative for 1991.

Analysts and bankers said the survey findings reflect the economic pressures placed on the banking industry in recent years.

"In a recession we keep our shoes longer," said William Storts, head of banking practice at Andersen Consulting in Chicago. "If you don't have the money to spend, you've got to get as much mileage as possible out of what you've got, and that's what bankers are doing these days."

Milking the System

Mr. Storts said customer information files are a prime example of how bankers are learning to milk more functions from their existing systems.

A customer information file, or CIF, is a data base at the hub of an integrated software system that contains information about each customer's relationship with the bank. Ideally, each file is automatically updated when new data are input anywhere on the system.

More Benefits from CIF

More than 85% of U.S. financial institutions have already installed the technology. But until recently, only a small percentage of these banks were using the files to full advantage.

"CIF started out as a tool to cut operations costs by eliminating the number of times data needed to be input," said M. Arthur Gillis, president of Computer Based Solutions Inc., New Orleans. "But bankers are seeing it can be much more than that."

Motivated by a renewed emphasis on product marketing and customer service, an increasing number of banking companies, including Chase Manhattan Corp., First Chicago Corp., and Meridian Bancorp, have purchased CIF software designed to help their customer service staff sell products.

The software, which is sold by Erly Cloud & Co., Newport, R.I., Sales and Management Training Inc., Atlanta, and others, consists of systems integration tools that prompt customer service representatives to sell certain bank products based on the information contained in the customer information file.

Fewer Customer Reps

The software, which starts at about $100,000 for a large institution, dramatically cuts the number of customer service representatives needed, according to vendors. One large institution, which declined to be identified, said it cut 350 employees as a result of installing the software.

"For banks looking for a strategic advantage without much risk, finding new ways to massage CIF data has become really attractive," said Robert Buskas, an executive vice president at American National Bank and Trust Co. in Chicago. "Controlling risk seems to be the name of the game."

Another way bankers are trying to limit their exposure to unnecessary technology risk is a shift toward buying rather than building software. Seventy-one percent of survey respondents indicated they would be abandoning – at least temporarily – development of proprietary software in favor of purchasing packaged programs from vendors.

By buying industry-standard packages for such functions as demand deposit and branch automation systems, banks let the vendors foot the development bill.

After the Recession

Beyond this short-term reaction to the economic climate, however, the survey suggests that many banks plan to return to proprietary development by 1993. Thirty-nine percent of U.S. commercial banks will be developing applications software in-house, the survey predicts, up from only 35% now. The survey also indicated that use of packaged software will drop to 52% by 1993, down from 57% currently.

In a postrecession economy, banks will want strategic systems, according to Richard Dougherty, a partner in Ernst & Young's Columbus, Ohio, office. "If anyone can buy a package, then it [doesn't] offer a strategic advantage. What [banks] want is something that differentiates their product delivery."

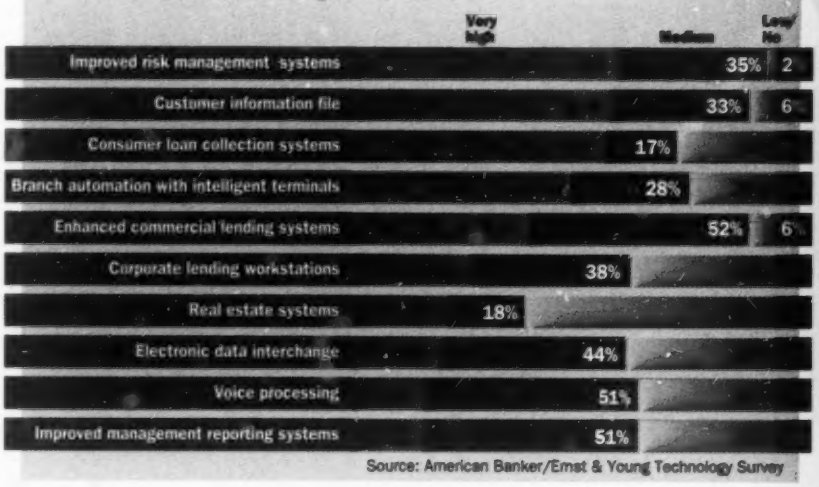
Many bankers have worried that the recession is causing them to lose some control of their operations, as they rely more heavily on the technology vendors for industry-specific products.

But others are quick to point out that the recession may have some positive long-term effects.

"The bottom line is that no one likes to be going through tough times, but they do tend to make businesses, including banks, leaner and more efficient than they are in cushier times," said Mr. Storts of Andersen Consulting. □

Changing Priorities

Relative importance of technological initiatives, 1990 – 93



Source: American Banker/Ernst & Young Technology Survey

The time has come for the top management of the bank, the CEO, to get involved in automation. Top management must face this fact and cannot wish that responsibility onto others.

Automation is no longer the intrigue and complexity that it has been for 30 years, and top management must realize that fact. The automation directions, strategies, and decisions

must come from bankers, not data processing people. For those CEOs who realize this, the bank can move ahead now. If they won't take the responsibility, then the bank will have to wait until the CEO is willing to become involved.

Automation is no longer decisions in hardware and software, but decisions in the art and science of banking.

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Big Banks Say No To Outsourcing

By Karen Gullo

TECHNOLOGY IS VIEWED AS A STRATEGIC ASSET THAT CAN BEST BE DEVELOPED AND CONTROLLED WITHIN THE BANK.

Banks of all sizes, under pressure to cut costs, have been looking at turning their technology functions over to outside firms. But few large institutions have actually taken the plunge into what is known in data processing circles as "outsourcing."

While some large banks have turned to outside specialists for processing credit card, trust, and mortgage service transactions, most have kept the management of their data centers and core technology systems in-house, according to the latest *American Banker* technology survey.

Ernst & Young, which conducted the 1991 survey jointly with the *American Banker*, estimated that only eight of the 150 largest banking companies, ranked by noninterest expenditures, have turned their data centers over to outside processing firms such as EDS Corp. or Systematics Inc.

All but one of the eight banks that outsource have assets under $22 billion, and half have contracts with Systematics, according to Ernst & Young estimates.

A Strategic Asset

The survey indicates that, in the eyes of many bankers at institutions with over $22 billion in assets, technology is viewed as a strategic asset that should be controlled by the bank. Data processing experts say many bankers have concluded that they can run their own operations as efficiently or more efficiently than an outside firm.

But tough economic times and the need to quickly cut costs and boost capital have led a few large banks to sign outsourcing contracts. Bankers at these institutions say outsourcing can reduce technology expenses 10% to 50% a year, keep them current with technological changes, and consolidate operations more quickly and efficiently after mergers.

The largest outsourcing contract in the industry to date was signed by First Fidelity Bancorp, which has $29 billion in assets. The bank turned its technology operation over to EDS Corp. in a deal worth $450 million over 10 years. It plans to reduce operating expenses by $150 million this year, with much of the savings coming from lower labor, real estate, and equipment costs made possible through outsourcing.

Republic National Bank of New York, Bank South, and Meritor Savings Bank have also outsourced their data centers.

At many of these banks, an outside firm manages the data center, hires the bank's technology staff, and acquires the computer equipment. Less often, the company will also hire the programming staff. Many banks prefer to retain their programmers as employees in order to control the development of core software systems.

"Banks looking at outsourcing are concerned about losing control and losing the ability to have a competitive advantage," said Laurence A. Liss, senior vice president of operations and technology at Meritor. "We had those thoughts too, but where you get your strategic benefit is in your ability to develop new systems and new products, and market them adequately."

Controlling Software

The bank signed a $300 million 10-year contract in April 1989 with EDS, which hired the bank's technology staff, including the programmers. Even though EDS manages the programming staff, Mr. Liss said the bank still exercises control over the direction of the technology.

Despite their reluctance to outsource data center management, banks of all sizes have shown a willingness to outsource particular segments of their operations, according to the survey.

In fact, banks will have a significant opportunity to create shareholder value by restructuring their basic operations and systems infrastructure. By facilitating this process, outsourcing generates operating cost savings in the range of 15% to 40% – even for the largest institutions.

Card Function Farmed Out

Fifty-two percent of the banks in the survey outsource credit card processing, and 38% outsource trust services.

Mortgage processing, student loan processing, and mutual fund processing are also popular areas for outsourcing. The banks are farming out securities safekeeping, credit card issuing, automated teller machine processing, cash management, and data communications facilities, but to a lesser extent.

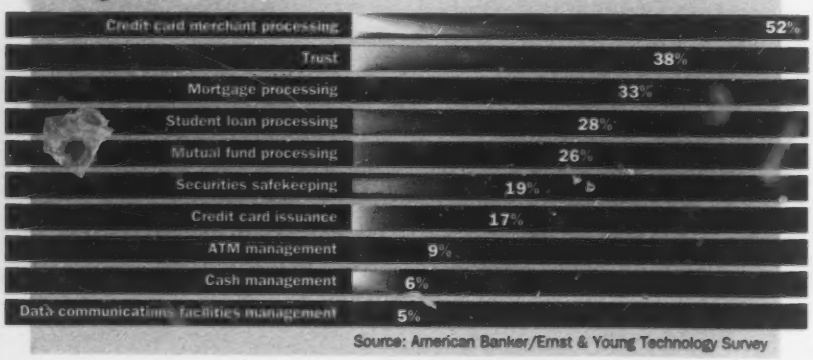
Many of the banks in the survey contract with such firms as Total System Services Inc., a subsidiary of Synovus Financial Corp. in Columbus, Ga., or First Data Resources Inc., an American Express Co. unit, for card processing. Most banks that were outsourcing trust services use SEI Corp., although a few are using Mellon Bank.

For mortgage processing, most banks contract with Computer Power Inc., Jacksonville, Fla. For student loan and mutual fund processing, the banks surveyed use a variety of vendors, including Mellon Bank, National Financial Services, and Federated Investors Securities. □

"Banks looking at outsourcing are concerned about losing control and losing the ability to have a competitive advantage."

LAURENCE A. LISS
Senior vice president
Meritor Savings Bank

Outsourcing Trends
Areas in which banks said they had significant outsourcing arrangements in 1990-91



Source: American Banker/Ernst & Young Technology Survey

Banks Race to Install Imaging Systems

By Joseph L. McCarthy

SOFTWARE PROMISES TO CLEAR OUT PAPER AND STREAMLINE WORKFLOW PROCEDURES

Imagine a room the size of a basketball court, packed with clunky file cabinets stuffed with manila folders. Imagine yourself, at a customer's request, scrambling around the room to dig out a single slip of paper in one of those folders.

By contrast, imagine shrinking that data bog to a jukebox-size unit filled with small plastic disks, and instantly being able to access by computer any information in the box.

Get the picture? Banks do. And the potential savings in floor space, money, and manpower are among the reasons the *American Banker*/Ernst & Young 1991 technology survey shows they are racing to adopt file-folder imaging. File-folder systems convert documents to electronic form and store them away.

According to the survey, commercial banks nationwide currently sport some 100 file-folder installations. But the survey projected that the number will soar to almost 1,200 by the end of 1993.

Optimistic Time Frame

Citing problems in the banking industry, the sluggish economy, and the time it takes to work out the kinks in any new technology, some industry observers said the survey's timetable is a bit optimistic. But all agree: File-folder systems will soon be commonplace at virtually all large banks – and even at some smaller ones.

"We see an explosion of file-folder applications" within a few years, said J. Terry Lowder, who heads the advanced-technology group at Banc One Services Corp., the operations unit of Banc One Corp., Columbus, Ohio.

"Most banks cite cost as the main reason they can't move into [file-folder] imaging," said Rebecca Poynor-Burns, senior consultant with Global Concepts Inc. in Atlanta. "But with the potential savings in time, staff, and real estate, we usually tell them they can't afford *not* to be involved."

Aid to Productivity

High hopes for the technology are easy to understand. Besides reducing paper and storage costs, file-folder software can help to automate and streamline workflow procedures. Some maintain that process – called re-engineering – can boost productivity up to 50% and reduce the likelihood of costly mistakes, often caused when files are lost while being passed along by hand.

But perhaps more important, a few larger banks are exploring the possibility of wedding file-folder imaging to other technologies such as expert systems. Some say the combination would help create high-powered sales and customer service staff.

Expert systems, which imitate the

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File-folder systems will soon be commonplace at virtually all large banks.

reasoning process of the human mind, are used by some banks to help with credit evaluations.

Large banks were first to jump on the file-folder bandwagon. Since 1985, Security Pacific has used imaging to process documents generated by a discrepancy in international funds transfer. Chemical Bank has used the technology for three years to process correspondence from credit card customers.

Midsize Banks Test Waters

But because the technology tends to be more affordable than larger-scale check imaging systems, a smattering of midsize banks and thrifts, including $5 billion-asset Green Point Savings Bank, in Brooklyn, N.Y., have been testing the waters.

"There's a lot of paper being used, and we all want to get rid of that," said Robert Petrullo, a vice president of Green Point. "There is definitely a payoff here."

Mr. Petrullo decided in 1989 to purchase a $60,000 file-folder system designed by Minolta Corp. to back up the thrift's mainframe software documentation. Green Point's setup comprises a scanner, printer, retrieval station, optical disk drive, and personal computer.

More elaborate file-folder systems – which hook powerful PCs called workstations into a mainframe host – start at about $250,000, depending on their computing power, level of customization, and number of stations. While pricey, that's still more affordable than multimillion-dollar check imaging packages. The cost difference has fueled the trend toward file folders, industry observers said.

"Check imaging is more capital intensive than file folder," said Charles W. McDonough, a partner at Andersen Consulting. While it may take five to seven years to recoup the investment in a check imaging setup, he said, a file-folder system can begin to pay dividends in 18 months.

"With file folder, banks that feel they can't afford to invest in check imaging may settle for getting their feet wet and look to expand as time goes along," said Ned Miltko, senior vice president at technology consultant Littlewood, Shain & Co., Exton, Pa.

Bankers Trust's Systems

Lots of banks are doing just that. For example, Bankers Trust New York Corp. currently has 22 workstations in a $1.5 million system for its corporate trust department. But beginning in July, the bank will phase in eight more workstations in its human resources department. One application will keep electronic folders on the 13,000 employees of the $63.6 billion-asset bank.

In addition, there are a handful of file-folder projects in the development stage at Bankers Trust, said Christopher Cryan, vice president and technology project manager.

Mr. Cryan credits file-folder technology with helping to light a fire under the bank's mortgage custody business, which processes the documentation behind mortgage-backed securities. Under a manual system, the unit strained to process a mortgage security with 5,000 underlying securities. But these days, it can process one with 150,000 supporting mortgages, Mr. Cryan said.

He estimated the system has caused productivity to improve about 35%, largely because of workflow software that moves electronic files to appropriate workstations. Under the system, when an employee is finished with a file, the data are automatically sent to the next person who needs to look at it.

Pilot at Banc One

On another front, Banc One is moving to use file folder-imaging with expert systems. By the first quarter of 1992, the bank will launch a pilot

credit-card program called Triumph, said Mr. Lowder of Banc One Services.

Under the integrated system, customer service representatives will have at their fingertips a combination of host applications, expert systems, and file-folder technology. One use for Triumph, Mr. Lowder said, will be an application called "closing comments."

One benefit of the application: If an individual calls to close an account or cancel a credit card, the system will prompt a customer representative to ask a series of questions to determine why. Based on the customer's responses, Triumph may suggest further questions.

For example, if customers are closing accounts because they are moving or hunting for higher interest rates, Triumph will scout the interest rates or product prices at rival banks and pin down the costs or benefits of such a decision, Mr. Lowder said.

"The system will help our customer service representatives to retain customers we might not have kept otherwise," he said.

Sizing Up Consumers

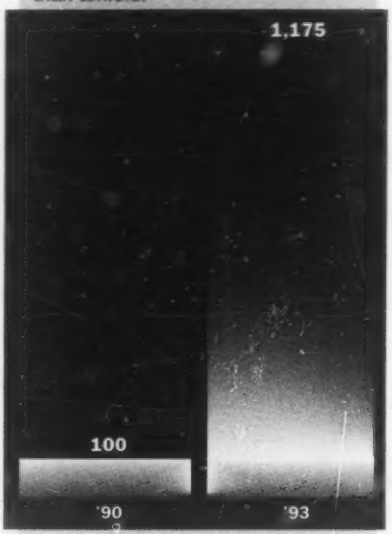
Experts familiar with such integrated systems also suggested that when prompted, Triumph may be able to automatically dial up a credit bureau, download relevant data to Banc One, do a preliminary credit analysis, and make a recommendation. Based partly on information in customer files, such systems may also be able to assemble lists of likely customers for a bank's products and services.

Mr. Lowder said Triumph lingered on the drawing board at Banc One for more than two years. The problem, he said, was that officials were waiting for signs that the technology would provide a 20% return on investment.

What brought the ROI figures in range, he said, was a decrease in the price of optical storage units and a price cut on the AS 400 midsize processor, manufactured by International Business Machines Corp. Another factor was a move by some vendors to standardize the form factor for optical disks, or the way stored data is accessed.

Imaging Systems Replace File Cabinets

The number of "file folder" imaging systems is expected to grow more than tenfold.



Source: American Banker/ Ernst & Young Technology Survey

Benefits aside, the decision to install a file-folder system presents some formidable hurdles. For one thing, there may be some hidden costs. The tab for changes required by the new equipment – ranging from employee training to new office lighting – can add 50% to 100% to the contracted price of an image system, analysts said.

Backlog of Paper

In addition, while most banks begin immediately to scan new documents into a system, there's usually a backlog of paper that may take years to clear up. The more sophisticated systems require high-octane mainframe computers. And workflow systems require customized, difficult-to-write software.

Meanwhile, going on line with a file-folder system may shake up employees, said Mr. Cryan of Bankers Trust. "There's a long learning curve for the technology," he said. "Where you used to have operators running around the building to get information, now they're chained to a terminal."

Even so, vendors are lining up to fill banks' file-folder needs. IBM, FileNet, Wang Laboratories, Plexus, NCR Corp., Digital Equipment Corp., Unisys Corp., and others are marketing and developing products.

For their part, some banks have banded together to study the technical issues involved in file-folder and other types of image processing. A short list of participants in the group – which is advised by Global Concepts – includes SunTrust Banks Inc., C&S/Sovran Corp., First Union Corp., Barnett Banks Inc., and MNC Financial Inc.

Other studies also point to a ground swell of activity in the file-folder arena. A poll recently completed by Global Systems projected a surge in the number and type of applications.

"The studies are saying, Hey, we should get moving" with file-folder systems, said Bruce Davis, an operations and technology official with the Bank Administration Institute in Rolling Meadows, Ill.

While agreeing with prospects for substantial growth, Mr. Cryan of Bankers Trust foresees a somewhat longer time frame. "Over five years we might see the kind of growth projected by [the *American Banker* survey]," he said.

Robert L. Castle, senior vice president of marketing at FileNet, a vendor in Costa Mesa, Calif., goes along with the five-year forecast.

"Right now, capital purchases are modest" because of the bleak economic climate, he said. □

Mainframes Pull More Weight

By Mary Beth Libbey

PERSONAL COMPUTERS AND WORKSTATIONS, NOW IN WIDESPREAD USE, ADD TO THE WORKLOAD OF THE BIG MACHINES

The number of mainframe computers in banks is shrinking because of industry consolidation, outside processors, and high costs, but they remain an important feature in the banking landscape.

Mainframes are doing more work and doing it faster because they have to. At many banks, mainframes are linked to powerful workstations and other terminals that demand more from them. They are manipulating more data for managers from finance to marketing, and more frequently, they are doing it on-line, instantaneously.

According to the *American Banker*/ Ernst & Young 1991 technology survey, the U.S. commercial banking industry owned 3,305 mainframes last year. The chief technology officers who responded to the poll predict that the number will drop 4.4% to 3,161 by 1993.

PCs Set the Pace

The survey, which was mailed to 150 of the top bank holding companies in March and returned by 57 technology managers, also found that the capacity of bank computers is exploding. In the past four years, the industry's mainframe computing power has tripled, reaching 36,000 MIPS, or million instructions per second, at the end of last year.

Mainframes have had to keep up with the proliferation of speedy personal computers throughout most banks. "There are more Indians out there and they're quicker, Custer," deadpanned Michael Simmons, executive vice president of Bank of Boston Corp. "There's a lot of intelligence out there, and the mainframe has to respond."

Computing Power

More computing power is also needed to process accounts and transactions within the same turnaround times banks maintained with smaller systems handling fewer accounts. "Bigger computers have to be faster," said Mr. Simmons.

Today, mainframes are storing more customer accounts and processing more transactions largely because of the past 10 years of acquisition fever. Many large banks now have branch networks spanning several states, linked to one or two data centers.

Yet another reason for the anticipated drop in the number of mainframes is cost. NCNB Corp., Banc One Corp., Bank of Boston, and U.S. Bancorp are among the many big banks that have chosen to consolidate because one data center is cheaper than two. More important, the cost of

Mary Beth Libbey is a freelance writer based in Albuquerque, N.M.

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adding capacity to a mainframe is dropping an estimated 10% to 18% per year, according to data processing managers.

For example, after U.S. Bancorp acquired Old National Bank and Peoples Bank, both of which are headquartered in Seattle, in 1988, it merged their data centers into its own facility in Portland, Ore. "It's a huge potential cost cutter," said Tim Meier, senior vice president of information services for the $18.5 billion-asset bank. "The incremental cost of adding workload is much less than running another data center."

The other attraction of huge-capacity mainframes is their ability to store more information on each customer to improve marketing and sales efforts.

Capacity Boosted Eightfold

Banc One Services Corp., the processing subsidiary of $29.7 billion-asset Banc One Corp., recently added a Strategic Banking System to its mainframe. The new system keeps eight times more data about each customer than the old one, said David Van Lear, president of the subsidiary.

"With this information, the customer service rep can market the kinds of things [customers would] be interested in," he added. "If your child is about to reach driving age, you might be interested in an installment loan or our insurance products. Before, all we tried to do was open a checking account fast; now we want as much information as we can build into the file."

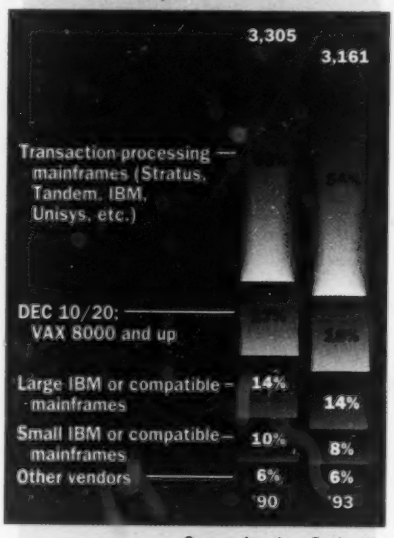
Customer demand for on-line transactions and account information at automated teller machines, the teller window, retail points of sale, and at a PC or telephone has been growing for some time, the survey found.

Transactions Skyrocket

Meanwhile, on-line transactions performed on mainframes totaled 10.5 billion last year – a threefold increase in five years, the survey found.

For Banks, Fewer Mainframes

Total mainframes and market shares over next two years



Source: American Banker/ Ernst & Young Technology Survey

None of these numbers surprise Mr. Simmons of Bank of Boston. In fact, he said, the numbers are long overdue. "We're finally in the world we talked about in the 1970s," he said.

Yet anyone who believed the pundits of the early '80s, who predicted that smaller, powerful computers would eventually make the mainframe obsolete, might be surprised.

Instead, distributing work that used to be done by the mainframe has in turn allowed the mainframe to take on more complex jobs, said Gene Sheiniuk, chairman of Key Consulting Group in Los Angeles.

"As equipment at the lower end grows in MIPS capability, it is taking over applications, work done on the mainframe historically," said Mr. Sheiniuk. He cited loan origination and documentation, appraisals, and some trust services as appropriate for PCs. "Any application that doesn't require a huge data base [is a] candidate to be offloaded."

Banc One's PC Strategy

That is exactly what Banc One is doing. While using the mainframe to keep detailed customer information files, the bank's strategy is to rely on PCs as much as possible.

"The price performance on PCs is improving even more rapidly than on the mainframes," said Mr. Van Lear. "It makes sense to move work to platforms and take advantage of that."

Despite a tremendous move in the industry to hire outside firms to do all or part of a bank's processing, none of the 57 survey respondents used outside processors.

That finding belies the industry trend, said Joseph L. Delgadillo, senior vice president of M&I Data Service Inc. "At least half of all banks with in-house systems are evaluating outsourcing all or part of their data processing," he said.

In fact, other research gathered by Ernst & Young shows that only eight of the top 150 bank holding companies have turned their data centers over to an outside processing firm.

Moreover, said Mr. Delgadillo, his 400 processing clients in 34 states range from the smallest to the largest institutions. Bank of America, for example, is using M&I as a service bureau for at least one of its many savings and loan acquisitions throughout the western states.

"We've been active in all segments," he said, noting that his company has added 22 clients with more than $1 billion in assets in the past five years.

Nevertheless, smaller banks are much more likely to jump on the outsourcing bandwagon. Mr. Delgadillo predicted that eventually only the largest banks – with $50 billion in assets or more – will do everything in-house because of the high costs associated with greater-capacity mainframes. □

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Off-the-Shelf Programs Grow Stale

Banks Hope to Gain an Edge with Custom Software

By Daniel P. Dern

In the next few years, the top U.S. commercial banks will be changing the way they obtain the critical computer software that supports their operations.

Because of the recession, most banks are now buying packaged applications software and, if anything, making small changes to customize the package.

By 1993, however, more banks will be developing applications software in-house and fewer will purchase packages.

Industry experts say the reason is simple: Packaged software can't keep up with the rapid rate of change in the industry.

Numbers Confirm Trend

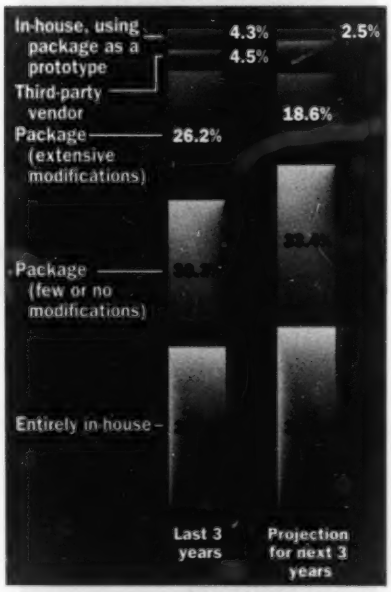
"In the early 1980s, people typically bought software packages and then modified them significantly to meet their needs," said James R. Dempster, vice president and group manager for software development at M&I Data Services, a subsidiary of Marshall & Ilsley Corp. in Milwaukee. "But if you modify a package, you can't keep up with whatever changes and new versions the vendor offers, and the vendor can't support what you've got."

According to the *American Banker*/ Ernst & Young 1991 technology survey, 39% of all U.S. commercial banks will be developing applications software in-house by 1993, up from 35% now. The survey also found that the use of packaged software will drop to 52% by 1993, down from 57%.

These industry projections were based on 57 responses to a survey of chief technology executives at top bank holding companies. The survey, conducted by Ernst & Young, was mailed in March to the top 150 bank holding companies, ranked by noninterest expenditures.

Sources of Software

Bankers say they will develop more applications entirely in-house



Source: American Banker/ Ernst & Young Technology Survey

Banks are most likely to direct in-house development efforts to applications that provide new products, promise faster delivery, or improve customer service. Banks are also likely to develop in-house software that can take advantage of existing systems and information.

"Custom programs can do what no off-the-shelf program is ever likely to do: automate the work flow for those processes most individual to an organization, from loan processing to marketing and customer support," said Michael Stein, president of Michael Stein Associates, a software development company in Washington, D.C.

But not all banks can afford the time and energy needed for in-house development. The strategy at First of America Bank Corp., Kalamazoo, Mich., is a combination of standardization and customization.

The $14 billion-asset company – with 28 commercial bank subsidiaries in three states – purchases existing packages for some standardized applications like customer information files, commercial loans, installment loans, or general ledger. It also custom-designs enhancements, such as special market analysis applications, that "support individual market differences," according to Peter Purcell, senior vice president of application development. □

Daniel P. Dern is a technology and business writer based in Watertown, Mass.

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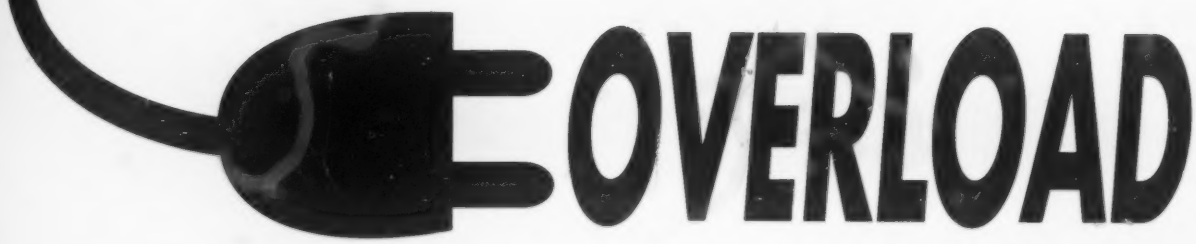

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Banks See the Merits of CASE

Software Technology Helps to Save Time, Labor

By Daniel P. Dern

To take charge of designing, writing, and maintaining critical software applications, banks are flocking to CASE.

CASE, or computer-aided software engineering, helps to automate systems development. It is technology that uses software to make software.

According to the 1991 *American Banker*/Ernst & Young technology survey, almost all U.S. commercial banks – 97% – will be considering or actually switching to CASE applications by 1993. As recently as 1988, the *American Banker* technology survey showed that only one in five of the nation's largest banks were using or planning to use CASE.

"These tools can more than double the productivity of programmers by automating complex system design documents and data element definitions using a PC, similar to the way General Motors uses PCs to design cars," said Brian K. Whitehead, a partner in the New York office of Ernst & Young.

Easing Maintenance

The 1991 data come from a poll of the senior technology managers at 57 of the top U.S. bank holding companies. The survey, conducted by Ernst & Young for the *American Banker*, was mailed to the top 150 banking companies (as measured by total noninterest expenditures) in March.

"One important concern within bank MIS [management information services] departments is to reduce the cost of extending and maintaining their already huge existing systems," noted Toronto-based software consultant Roelf Woldring. "In many banks, over half of MIS resources are devoted to modification maintenance – adding new functions to existing systems. CASE tools offer ways for improvements to be applied to what you've already got, rather than forcing premature total systems replacement."

Mr. Woldring said CASE can bring about the following improvements:

- Reduce the number of people required to perform maintenance.
- Make the maintenance process more responsive.
- Improve systems so they don't need as much maintenance.

CASE tools come in several flavors.

In computer jargon, "upper CASE" refers to high-level activities like system design, planning, analysis, and specification.

"Upper-CASE tools are invaluable for data modeling and to improve communications among designers, developers, and users," said Hal Aaron, president of Softport Systems, New York, a developer of custom software systems.

"Lower-CASE" tools actually build programs. The programmer keys in a series of steps in English; CASE then makes a computer code that executes the steps in order.

Bullet-Proof Codes

Many banks look to lower-CASE tools to cut what is historically the most time-consuming part of software creation: coding (writing the programs) and testing, and to make code more "bullet-proof."

First National Bank in Chicago has been using both upper- and lower-CASE tools for almost three years in a variety of applications, including a consolidated collateral system, system security, and marketing and customer-related systems. "We're interested in tools like this for use in the complete design through code generation cycle," said Martin Bronstein, vice president of systems development. "The large learning curve makes it hard to quantify productivity gains at this point, but we believe we'll achieve them." □

"These tools can more than double the productivity of programmers by automating complex system design ... similar to the way General Motors uses PCs to design cars."

BRIAN K. WHITEHEAD
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Daniel P. Dern is a technology and business writer based in Watertown, Mass.

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AB-09

Micros Become Standard Equipment

By Janice Fioravante

BANKERS EXPECT TO EMPLOY AS MANY MACHINES AS WORKERS BY THE YEAR 2000.

Microcomputers have achieved the status of standard equipment in the banking industry – akin to such mundane devices as electronic calculators.

The *American Banker*'s fifth annual technology survey suggests just how widespread micros, personal computers, and high-powered workstations have become in banking. And the growth will continue, posing management and marketing challenges even as the industry reaps efficiencies in back and front offices.

Commercial banks in the United States have just over 600,000 micros. That represents a capital outlay of $6 billion since the micro revolution of the early 1980s.

The number of machines will rise to an estimated one million within three years. Experts predict that by the year 2000, the total number of micros in the industry will level off near 1.5 million – equal to the number of employees in commercial banking.

A PC on Every Desk

In other words, the plan is to put a PC on every desk. And the technology is viewed as far more than just another component of office equipment.

"How they're managed is the trick – through connectivity to information and data," said Michael Yudkin, vice president of corporate information services at Manufacturers Hanover Trust Co. The industry has barely begun to tap all its microcomputer power where the payoff may be greatest: in marketing to customers and tracking their relationships and profitability.

Janice Fioravante is a freelance writer based on Staten Island, N.Y.

Boosting Productivity

As banks work to boost productivity, the front line in branches becomes crucial, said Thomas Candless, a bank analyst at Goldman, Sachs & Co. Hence the newfound emphasis on deploying PCs where employees come in contact with customers.

"Banks need these tools for information on customers to do a better job of marketing, cross-selling, making loan decisions, and fitting a new product to the customer's profile," said William Storts, partner in charge of the banking industry for Andersen Consulting.

Mr. Candless agreed: "Micros enhance branches' ability to sell more products and services to depositors." Banks are developing proprietary client data bases so that when customers walk in, their average balance, whether or not they have a CD or safe deposit box, and how many different relationships they have with the bank will be readily discernible.

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come from a poll of the senior technology managers at 57 of the 150 largest banking holding companies in the United States (as measured by noninterest expenditures). The average asset size of responding banks was $15.5 billion. Ernst & Young mailed the questionnaires in early March, and by late April reached the final response rate of 38%.

Putting a PC on every desk is going to cost the industry a lot of money. "You shouldn't buy the house if you can't afford to pay the utilities," said O. Darwin Smith, president of NCNB Support Services Inc. and a staunch defender of the PC strategy. "You can't look at PCs in isolation; you have to consider their use – the telecommunications and the human support needs."

Operating Systems

And then there is the matter of operating systems. These are the bedrock programs in a computer that allow it to run various applications.

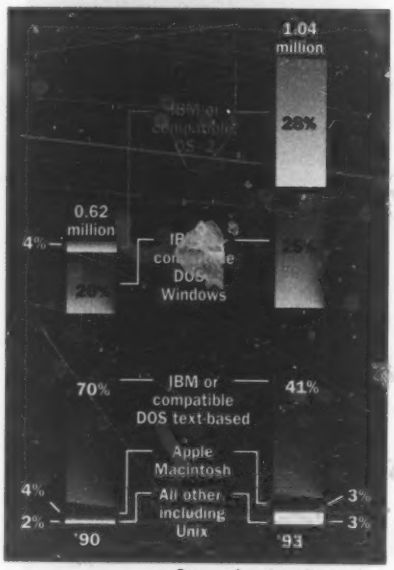
Three operating systems are used most often by banks: OS/2, DOS, and Windows. The OS/2 system is a large-memory alternative to older, less powerful personal-computer environments like DOS. The major advantage of OS/2 over older systems is its ability to let platform workers do multiple tasks on the same PC. Windows, a program that can be layered on top of DOS, replaces typed commands with symbols. It is considered more user-friendly because of its on-screen menus and easy-to-grasp symbols, compared with the text-based codes used in DOS systems.

OS/2, Windows on Rise

According to the survey, PCs that run only the DOS operating system represented 70% of banks' storehouse of micros in 1990. In three years, bankers predict, only 41% of their micros will still be DOS text-based machines.

OS/2 to Boom As DOS Fades

Estimated growth of operating systems measured by use in microcomputers and workstations



Source: American Banker/ Ernst & Young Technology Survey

Machines that run on OS/2 operating systems, which represented only 4% of banks' micro arsenal in 1990, are expected to balloon more than six-fold – to 28% of the PC/workstation base. Windows – currently in 20% of the installations – will grab an additional 5% by 1993, according to survey respondents.

"We're pushing hard on OS/2," said J. Terry Lowder, vice president of the advanced technology group at Banc One Services Corp., the operations unit of Banc One Corp., Columbus, Ohio. Banc One is about to put OS/2 in all of its 800 branches.

The newest OS/2 release will be available in September, said Mr. Lowder, but he's expecting to get a pre-release deal. "We saw it demonstrated in April, and we were very impressed," he said.

San Francisco-based Bank of America tells a similar tale. "At present, OS/2 is a very small number – less than 150 installations of our 30,000 to 35,000 PCs – but that will change," said George Cheng, vice president and general manager of communications systems for BankAmerica System Engineering, the technology division of Bank of America. "Especially for more complex, mission-critical applications, we're using OS/2."

But Mr. Cheng admits that many employees prefer the Windows system, because of its easy-to-understand graphics.

"In three years, we expect to have 50,000 PCs," he said. "And while 95% are running DOS today, there is a migration to Windows.

Windows at Hanover

At Manufacturers Hanover, "windows has become the standard. I have 3,000 to 5,000 PCs out there, and 2,000 to 3,000 have Windows," said Mr. Yudkin.

But the jury is still out on whether OS/2 or Windows will be used by more Hanover branches in 1993. "Microsoft says that Windows will be a much more powerful product by then, and that it will do true multitasking," said Patricia Valentino, vice president for regional branch and user computing at Hanover.

Banks are trying to put data, function, and processing in the hands of the end users – their employees, said William Storts, head of the banking practice for Andersen Consulting. OS/2 and Windows, he said, are simply two different routes to productivity improvement and cost control.

"There isn't a bank out there that will be profitable if it can't manage its costs better," said David Van L. Taylor, a group executive at the Bank Administration Institute who has extensively studied bank technology. "The traditional office was inefficient, very paper intensive. The only hope to change that is the PC. If banks aren't out there moving forward, they'll fall back." □

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Brighter Branches From Smart Terminals

By Judy Ferring

CUSTOMER-ORIENTED SOFTWARE EXPECTED TO PROVIDE THE EDGE NEEDED TO REMAIN COMPETITIVE.

Intelligent terminals – also known as microcomputers – are moving into branch networks, changing the way staffs will work and, ultimately, the way many banks do business.

The *American Banker*/Ernst & Young 1991 technology survey found 175,000 micros – most often personal computers – in bank branches in 1990. They accounted for 26% of all intelligent terminals in banks. By 1993, branches will boast an estimated 410,000 micros, or 38% of all micros in banks.

The data come from a poll of the senior technology managers at 57 of the top U.S. bank holding companies. The survey, conducted by Ernst & Young, was mailed to the top 150 bank holding companies (as measured by total noninterest expenditures) in March.

These 57 bank holding companies represent over 25% of the industry's total noninterest expenditures and were evenly distributed among the top 150 in terms of size.

Improving Service

The key to the move toward intelligent terminals – as opposed to dumb terminals, which have no internal processing capacity – is their ability to run sophisticated, customer-oriented software packages.

A bank with a technology strategy that stresses customer service will be able to maintain a competitive edge in its market, according to Walter Tallent, senior vice president and chief technology officer of Hogan Systems Inc., a Dallas-based software vendor. He said that such banks will have the flexibility to change whenever a new need crops up.

Surprisingly Fast Shift

Although some industry observers postulate that much of the future growth of micros will be one-for-one replacement of dumb terminals, the survey results turned up a surprisingly different trend.

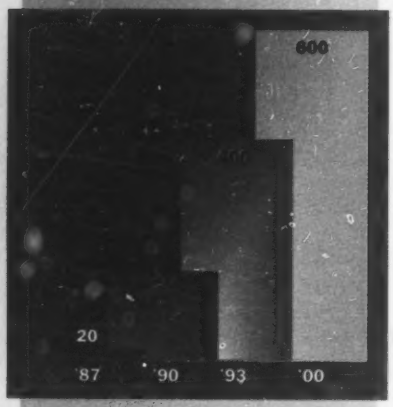
The respondents indicated that they expect about 120,000 fewer dumb terminals in U.S. commercial banks in 1993 than in 1990. That is far from equal to the projected 408,000 increase in intelligent terminals that the same executives foresaw.

The industry's software vendors and the banks they work with are already dreaming up – and sometimes testing – new uses for intelligent terminals that will broaden branch functions. Often those new applications will mean added skills and responsibilities for branch employees, especially in areas where bank manage-

Judy Ferring is senior editor of Retail Banking Manager, *an* American Banker *newsletter.*

Personal Computers to Explode on the Branch Network Scene

Number of PCs located in bank branches, in thousands



Source: American Banker/ Ernst & Young Technology Survey

ment perceives that personal contact with retail customers will improve the quality of service and yield a marketing edge.

At the same time, vendors are intent on keeping their products simple and understandable. It's deeper knowledge about consumer finances and financial management that's likely to be in branch staff's future.

For example, in three or four years time-saving systems will make it economically feasible for branch personnel to offer advice and assistance to customers with delinquent loan repayments, said Mr. Tallent. Today these calls are made by outsiders – contracted collection agents – who are often resented and sometimes ruin the bank's chances for future business with those customers.

Information by Phone

A different setup – now in prototype – links a centralized telephone system to branch personnel's workstations. As the computer dials, it calls account information to the branch representative's screen. The representative then ascertains the problem, agrees on a solution with the customer, and – after hanging up – uses a few keystrokes to select standardized paragraphs for a follow-up letter. The letter is printed, addressed, and mailed without further intervention by any personnel – either in the branch or at headquarters.

Other developments that Mr. Tallent sees in branch networks' future are workstations that will take voice dictation, then ship off memos, letters, and voice messages; scanner-equipped mail rooms that will forward letters and periodicals to the branches via modem, thus coming closer to that age old dream of the paperless office; camcorder-equipped real estate lenders and appraisers who will be able to digitize pictures of collateral (property) into their banks' data bases.

Also in development: the PenPoint operating system from Foster City, Calif.-based Go Corp.

This notebook-sized pen-based computer is meant to be an extension of intelligent workstations that will allow, for instance, customer service representatives assigned to supermarket branches to take their products and application forms right out into the aisles.

System in Place

But getting back to the here and now, Nazareth National Bank in Pennsylvania expects to make cash management services available to its small and midsize business clients soon after a new automation system is on-line in its seven-branch network later this summer.

"The more you use intelligent terminals, the more uses you find for them," said Reid Heeren, chief financial officer of the bank. Nazareth purchased new account and loan-origination software, and plans on doing on-line signature verification at teller stations. And that's just the beginning. □

In three or four years, systems will allow branch personnel to offer advice and assistance to customers with delinquent loan repayments.

Unveiling a Technology Strategy

Small community bank buys big new system

By Judy Ferring

When Nazareth National Bank signed a big technology purchase order last December, installation was targeted for late May.

"Ah, make that Labor Day," chuckled senior vice president and chief financial officer Reid Heeren on May 29. "Remember, these things never work out exactly as planned."

Mr. Heeren's cheerful acceptance of a three-month delay is no doubt rooted in his anticipation of the payoff. When the switch is finally thrown, his bank – and its seven-branch network in Pennsylvania's Lehigh Valley – will have leaped more than a decade of technological advances. A Unisys 1900 mainframe in use since 1980, a handful of dumb teller terminals, and several limited-function automated teller machines will have been traded for NCR's 3445 mainframe, Banker II software, and the latest coin-dispensing 5085 ATMs.

Mr. Heeren believes a branch network of intelligent workstations will be his equalizer amid strong competition. Nazareth, a $217 million-asset community bank, competes with a covey of big regionals that now dominate the Lehigh Valley.

Long-Term Strategy

To keep the competition lively, Nazareth plans to stick to its technology strategy well into the future. "We've bought new account and loan-origination software," said Mr. Heeren. "We'll be doing on-line signature verification at the teller stations, but that's just a primitive form of imaging. That will be an area of future development for us."

"I can't think of anything we're giving up in the transition," he added. "If anything, it's been our people's time."

Most of the delays developed in the software area. For one thing, the Banker II software needed extensive modification to accommodate the way Nazareth handles transactions.

Training Process Slowed

With software modifications proceeding almost in tandem with employee training, it took a while for Nazareth staffers to learn the new systems. That process began with the bank's data processing staff as soon as the deal was made.

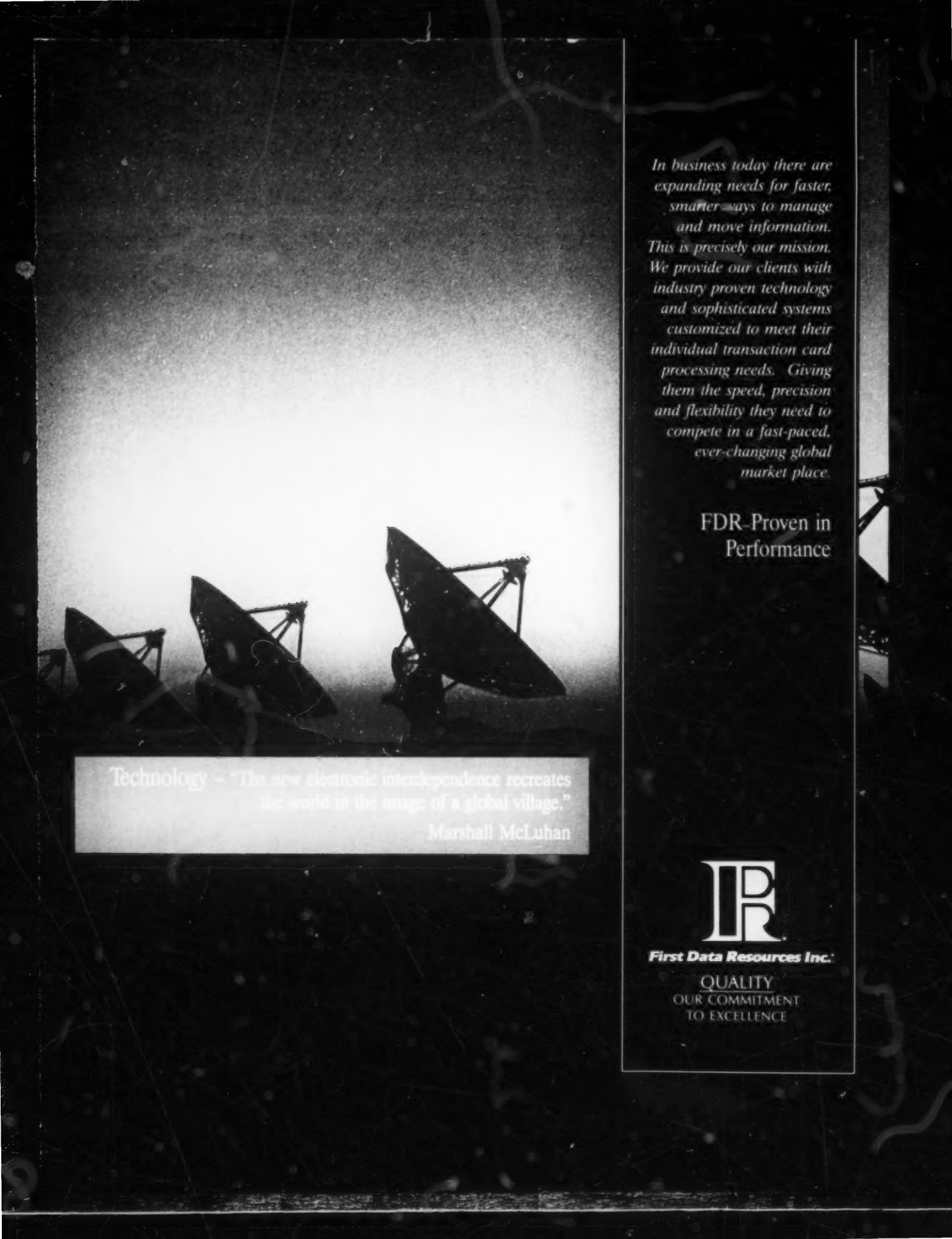
At first all training came from outside the bank, but soon Nazareth augmented the NCR staff with a new trainer on its own rolls. This move added overhead Mr. Heeren neither begrudges nor expects to eliminate later – there will be plenty to do even when the transition is complete.

"We've traditionally run thin on technical staff," Mr. Heeren said. "And this will be an ongoing thing, so [the new employee] will work on training new people and developing new products and services – and who-knows-what that Washington is going to require."

In the fall, Nazareth will be able to develop new products – "maybe not new to the industry, but new to community banks" – for its target market, said Mr. Heeren: "We probably wouldn't have made this decision otherwise." One of the first he envisions will be cash management products for the growing number of small and mid-size businesses and professionals moving into the valley.

> *"We'll be doing on-line signature verification at the teller stations, but that's just a primitive form of imaging. That will be an area of future development for us."*
>
> **REID HEEREN**
> *Chief financial officer*
> *Nazareth National Bank*

Mr. Heeren foresees true market growth – rather than a redividing of a fixed market – in his region over the next few years. The Lehigh Valley is developing into a bedroom community for the New York metropolitan area, he said, and a haven for small businesses fleeing burdensome tax structures in New York and northern New Jersey. With new intelligent terminals and support technology in place, Nazareth plans to compete on an equal footing with the big regionals for a fair share of the growing market. □



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DEWAR'S PROFILE:

MARK SALZMAN

HOME: Los Angeles, California.

AGE: 29.

PROFESSION: Author, actor, martial artist. "I know everyone in L.A. says that, but really, I am."

HOBBY: Going to the zoo. "It's the one place I won't be asked about China–except by, maybe, the pandas."

LAST BOOK READ: *Discos and Democracy: China in the Throes of Reform*, Orville Schell.

LATEST ACCOMPLISHMENT: Writing the script and starring in the movie "Iron and Silk," based on his book about his experiences as an English teacher in China.

WHY I DO WHAT I DO: "What else do you do with a degree from Yale in Chinese Language and Literature?"

QUOTE: 之呼茶也

PROFILE: Animated, ebullient and prone to colorful exaggeration.

HIS SCOTCH: Dewar's, "White Label", straight up. "After years of drinking nothing but rice wine, it was a pleasure to return to a place where my Scotch was always on the menu."